



New York State Department of Health Wadsworth Center

Clinical Laboratory Information Management System

3rd Annual Public Health Information Network Conference

May 2005



Wadsworth Center

Wadsworth Center is dedicated to science in the pursuit of health. It fulfills its mission of protecting and promoting the health of New Yorkers through analysis, research and education.

As a public health laboratory, Wadsworth conducts programs in comprehensive clinical and environmental laboratory evaluation and accreditation. Among the direct analytical services performed are screening of newborns for inherited metabolic disease; diagnostic detection and reference services for such life-threatening diseases as HIV and TB; and diagnostic testing related to communicable disease outbreaks. Evaluation of drinking water quality; assessment of pollutants and toxic effects on state residents; and surveillance of radioactive emissions are additional functions.

Wadsworth Center Sites



Biggs Laboratory at the
Empire State Plaza



David Axelrod Institute



Griffin Laboratories

Center for Medical Science

The Genomics Institute

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Presenters

Colleen Fleshman
Clinical Analyst

518-473-6729
cef04@health.state.ny.us

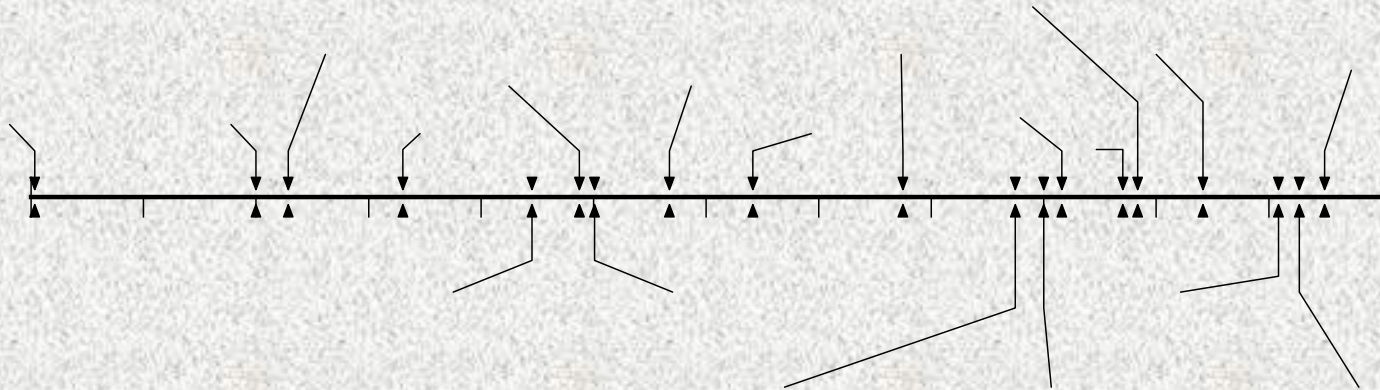
Karen Greene
Technical Analyst

518-486-3683
klg02@health.state.ny.us

What is CLIMS?

- Sample tracking and information system designed to meet the needs of a public health laboratory
- Developed in-house giving Wadsworth Center the ability to:
 - Respond quickly to public health emergencies
 - Interface more seamlessly with other NYSDOH systems

CLIMS History



Serology Labs

- Arbovirus (spring 2005)
- Diagnostic Immunology
- HIV
- Rabies (summer 2005)
- Syphilis
- Viral Encephalitis

Microbiology Labs

- Bacteriology
- BioDefense
- **CLIMS** project starts
- Chlamydia
- Gonorrhea
- Mycobacteriology (summer 2005)
- Mycology
- Parasitology
- Virus Ref & Surveillance

Syphilis

G

CLIMS History

Laboratory	# Tests	1st year	Total Accessions	Total Specimens
Bacteriology	129	1998	58,737	59,549
BioDefense Laboratory	20	2003	107	167
Chlamydia	22	1997	4,712	4,742
Clinical Virology Program	26	2003	1,144	1,152
Diagnostic Immunology	131	1999	19,159	20,771
Gonorrhea	22	1996	61,862	66,814
Mycology	61	1999	7,355	7,358
Parasitology	14	1998	4,338	4,346
Retroviral Immunology	21	2003	184,395	184,395
Syphilis	4	1996	166,908	166,909
Viral Encephalitis	20	2005	142	142
Virus Reference and Surveillance	76	2005	327	327
	<u>546</u>		<u>509,186</u>	<u>516,672</u>

Note:

1. Total Accessions and Total Specimens entered into CLIMS as of 4/20/2005
2. Clinical Virology Program was split into Viral Encephalitis and Virus Reference and Surveillance as of 1/1/2005
3. BioDefense part of Bacteriology prior to 2003

The logo for CLIMS is positioned on the left side of the slide. It consists of the letters 'C', 'L', 'I', 'M', and 'S' stacked vertically. Each letter is rendered in a light green, semi-transparent font, with a darker green shadow or outline of the same letter placed slightly to its right and bottom, creating a 3D effect.

CLIMS Architecture

Main Modules

PowerBuilder

- Accessioning
- History Form Entry
- Result Entry
- Supervisor Review
- Report Print

Intranet Web Application

- Inquiry (HIV lab)

Support Modules

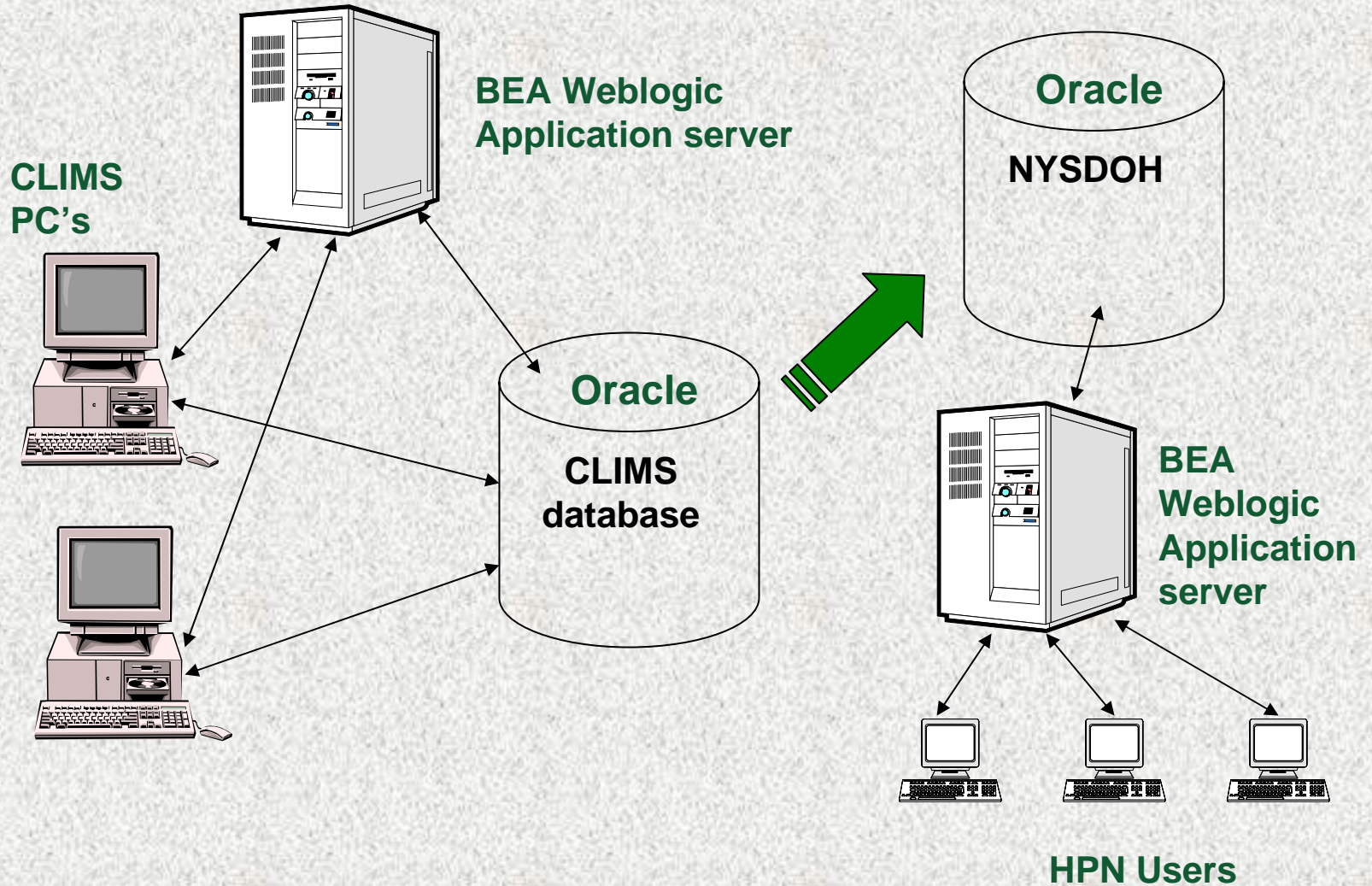
PowerBuilder

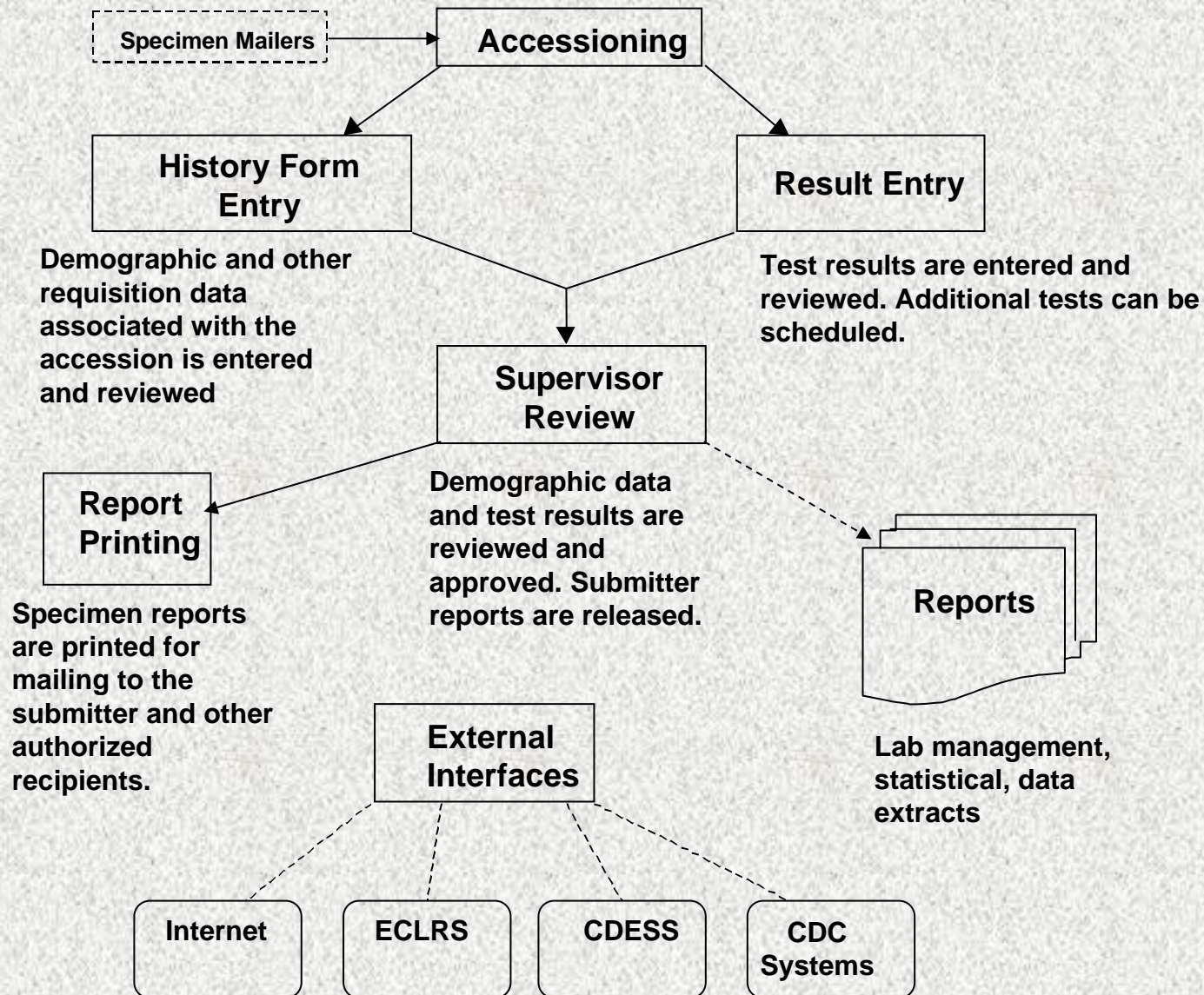
- Organism Maintenance
- Picklist Editor
- Lab Notes Editor

J2EE

- Submitter/Facility Maintenance
- Test Configuration

CLIMS Architecture





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External Interfaces NYSDOH

- **ECLRS** (Electronic Clinical Laboratory Reporting System)
Used by laboratories for reporting results to:
 - County health units
 - Bureau of Communicable Disease
 - AIDS Partner Notification Program
 - TB Control

External Interfaces

NYSDOH

- Division of Epidemiology
 - EIP program data (Emerging Infections Program - includes data from Bacteriology, Parasitology and Virology)
 - West Nile data (from Diagnostic Immunology and Virology)
 - HIV
 - Seroprevalence test data
 - Pediatric specimen tracking system data
 - TB Quantiferon screening data
 - Flu Surveillance - Sentinel Providers



External Interfaces - CDC

- **PHLIS** (Public Health Laboratory Information System)
 - Campylobacter
 - Cryptosporidium
 - Cyclospora
 - E. coli O157:H7
 - Influenza
 - Salmonella Human
 - Salmonella Non-Human
 - Shigella
- **NREVSS** (National Respiratory and Enteric Virus Surveillance system)



External Interfaces - Internet

Through the NYSDOH Internet Commerce Site Health Provider Network (HPN), submitters have access to specimen reports and specimen receipt notices.

**New York State Department Of Health
WADSWORTH CENTER
Clinical Laboratory Information Management System
Web Reporting Application**

Welcome to the Wadsworth Center's web interface to CLIMS specimen reports. Reports are available within 6 hours of their release from the following Division of Infectious Disease laboratories:

- Bacteriology
- Diagnostic Immunology
- Mycology
- Parasitology
- Chlamydia
- Gonorrhea
- Syphilis
- Viral Encephalitis
- Virus Reference and Surveillance

Specimen Receipt Notice

NEW YORK STATE DEPARTMENT OF HEALTH WADSWORTH CENTER

Clinical Virology Program
PO Box 509, Albany, New York 12201-0509

Specimen Receipt Acknowledgment

A Missing Information Notice has been faxed to you. [Click here to view it.](#)

Accession Id: VRS0500001508
Submitter Id: POSHNI
Facility Id: PFI3849

Patient Name: [REDACTED]
Gender: F
Date of Birth:
Patient County: New York

Received Date: 4/13/2005

Collection Date: 4/11/2005

Contact Person:
Contact Phone:

Contact Fax:

Comment: HX: PREMATUREITY (29 WKS. G.A.) CHRONIC PULMONARY PROBLEMS

Submitter Specimen Id:

Report will be mailed to:
DR. IQBAL POSHNI
NYC DEPT OF HEALTH & MENTAL HYGIENE PUBLIC HEALTH LABS
455 FIRST AVENUE - ROOM 1175
NEW YORK NY 10016

Id	Specimen Source and Condition	Ordered Tests
01	Trachael swab	Virus Culture Virus Molecular Detection

Submitter Report

NEW YORK STATE DEPARTMENT OF HEALTH WADSWORTH CENTER

Clinical Bacteriology Laboratory
PO Box 509, Albany, New York 12201-0509

Report No: BAC0500002674-SR-1

Report Date: 4/21/2005

Report retrieved via NYSDOH Health Provider Network by user klg02 on 4/21/2005

REQUESTED BY: GREITZERL-GREITZERL
LAWRENCE GREITZER, MD
CHATHAM MEDICAL BUILDING
29 JONES AVENUE
CHATHAM NY 12037

PATIENT: [REDACTED]
DOB: [REDACTED]
SEX: Male
County of Residence: Columbia

FINAL LABORATORY REPORT

Specimen: BAC0500002674-01

Type: Nasopharynx

Bordetella pertussis by culture: **Negative**

Bordetella pertussis by PCR : **Positive**

Date collected: 4/2/2005

Date received: 4/5/2005

NOTES:

- [1] (+) PCR reported to Mickey(Dr.Greitzer's office) 4/6/05-AS.
- [2] (+)PCR/culture for B.holmesii reported to Mickey(Dr. Greitzer's office) 4/15/05-AS.
- [3] The target sequence for the Bordetella pertussis PCR assay shares homology with Bordetella holmesii, which may also produce a positive result.

END OF REPORT

This reportable disease test result has been posted on ECLRS, the NYSDOH Electronic Clinical Laboratory Reporting System, in accordance with New York State Public Health Law, and is available to local and/or state health officials as required.

Clinical Bacteriology Laboratory Phone: (518) 474-4177 Fax: (518) 486-7971

Use of PHIN Standards

- ECLRS messages sent in HL7
- All reportable results are LOINC coded
- All organisms are coded using SNOMED

LOINC

Logical Observation Identifiers Names and Codes



We frequently find ourselves in the position of requesting new codes for tests developed at Wadsworth Center. The Regenstrief Institute has consistently been able to provide us with new codes prior to the test going into production.

SNOMED

Systematized Nomenclature of Medicine

The microbiology labs have access to the CAP CLUE Browser which allows them to search the most current code set (Jan 2005) for organisms not yet defined in CLIMS.

CLIMS can link to the 3 primary SNOMED code tables and create an organism for any current concept in SNOMED.

CLIMS can assign a temporary code for organisms not yet part of the SNOMED code set and replace the temporary code when the organism is officially coded and included in the SNOMED code set.

Accessioning



- Requires minimal data entry
- Allows for multiple specimens per accession
- Multiple specimens with the same source and test can be accessioned as a group
- Label printing configurable by lab



Accessioning

Configurable by lab

Required Fields

- Received date
- Specimen source
- Received condition
- Test(s) scheduled
- Notes

Optional Fields

- Isolate indicator
- Isolate Detail
- Received State
- Body Site
- Specimen Volume
- Lab Purpose
- Label text
- Study

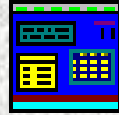
History Form Entry



Demographic and other requisition data associated with the accession is entered and reviewed

- Allows for the separation of lab and reporting functions
- Verification by review or double blind entry is configurable by lab
- Electronic forms can be easily modified to reflect changes in the paper forms
- Generation of missing information letters configurable by lab

Result Entry



Test results are entered and reviewed.
Additional tests can be scheduled.

- Menus are dynamically built so users see only tests or groups of tests with specimens pending result entry or review
- Worksheets for entering results are dynamically built based on the configuration of the test

Result Entry

- Results can be selected from picklists, free form entered or assume a configured default value
- Specimens can be batched with results for specimens and controls entered on the same worksheet
- Instrument data can be imported
- Additional tests can be scheduled

Supervisor Review



Pulls together all the data on an accession:

- history form data
- test results
- notes
- audit trail
- summary of reports previously released

allowing the supervisor to review all details before final approving results and releasing a submitter report.

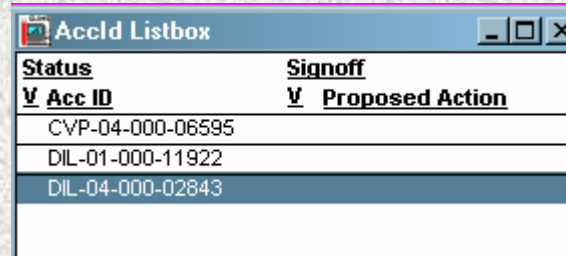


Supervisor Review Tools

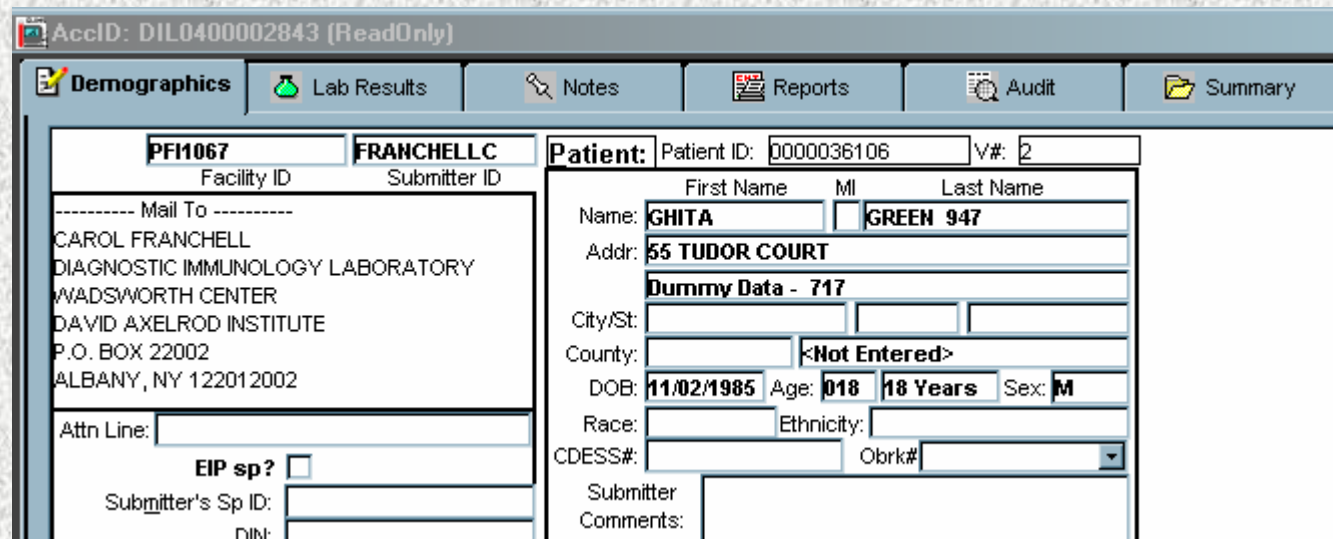
- > 150 management reports
- Define and manage outbreaks
 - Suspected
 - Bureau of Communicable Disease
 - Food Protection
- Define and manage studies
- Manage batches

Supervisor Review Split Screen Work Environment

- List of accessions meeting the retrieve criteria
- Details of current accession



<u>Status</u>	<u>Signoff</u>
<u>✓ Acc ID</u>	<u>✓ Proposed Action</u>
CVP-04-000-06595	
DIL-01-000-11922	
DIL-04-000-02843	



AccID: DIL0400002843 (ReadOnly)

Demographics | Lab Results | Notes | Reports | Audit | Summary

PF11067 Facility ID | **FRANCHELLC** Submitter ID

----- Mail To -----
CAROL FRANCHELL
DIAGNOSTIC IMMUNOLOGY LABORATORY
WADSWORTH CENTER
DAVID AXELROD INSTITUTE
P.O. BOX 22002
ALBANY, NY 122012002

Attn Line:

EIP sp? ☐

Submitter's Sp ID:

DIN:

Patient: Patient ID: 0000036106 V#: 2

First Name MI Last Name
Name: GHITA GREEN 947

Addr: 55 TUDOR COURT

Dummy Data - 717

City/St:

County: <Not Entered>

DOB: 11/02/1985 Age: 018 18 Years Sex: M

Race: Ethnicity:

CDESS#: Obrk#:

Submitter Comments:

SR - Demographics Tab

Demographics		Lab Results	Notes	Reports	Audit
PFI1067 Facility ID		FRANCHELLC Submitter ID		Patient: Patient ID: 0000036106 V#: 2	
----- Mail To ----- CAROL FRANCHELL DIAGNOSTIC IMMUNOLOGY LABORATORY WADSWORTH CENTER DAVID AXELROD INSTITUTE P.O. BOX 22002 ALBANY, NY 122012002		Name: GHITA MI: GREEN 947 Addr: 55 TUDOR COURT Dummy Data - 717 City/St: County: <Not Entered> DOB: 11/02/1985 Age: 018 18 Years Sex: M Race: Ethnicity: CDESC#: Obrk# Submitter Comments: Di Emp Id Code Di Area Or Region			
Attn Line: EIP Sp? <input type="checkbox"/> Submitter's Sp ID: DIN: Onset Date: 06/01/2004 Collected: 06/01/2004 00:00:00 Test Requested: 00/00/0000 00:00:00 Received: 10/29/2004 00:00:00 Entered: 10/29/2004 13:03:18 Completed: 02/10/2005 14:16:10 Approved: 02/10/2005 14:17:59 Final Report: 02/10/2005 14:17:58 ECLRS Report: 00/00/0000 00:00:00		Notes: Number of Notes: 2. To view these, use the notes folder. Status: FADONE Rvw: Diagnostic Immunology Patient Lab Purpose: CLINICAL CLIMS Purpose: CLINICAL Species: Abnormality: NS ECLRS Alg: IF NEEDED			

SR - Lab Results Tab

Demographics		Lab Results		Notes		Reports		Audit		Summary		
DIL0400002843 01		Initial TG: EHRLICSER				Status: FINAL						
Type	IsIt?	Abnormality	Recd Cond	Lab	Ext. DB ID in Ext. DB (Epi)							
Details	SR	Unknown	NS		DI							
Ehrlichia Serology (v2)												
Agent of HGE IgG Immunoblot (v1)												
HGE IgG Interpretation: 02/10/2005 3												
HGE IgG Result: 02/10/2005 POS												
Agent of HGE IgM Immunoblot (v1)												
HGE IgM Interpretation: 02/10/2005 4												
HGE IgM Result: 02/10/2005 NEG												
DIL0400002843 02		Initial TG: PCR				Status: FINAL						
Type	IsIt?	Abnormality	Recd Cond	Lab	Ext. DB ID in Ext. DB (Epi)							
Details	BLD	Unknown	NS		DI							
PCR Testing (v2)												
Agent of HGE PCR (v3)												
HGE PCR: 02/10/2005 NEG												
Ehrlichia chaffeensis PCR (v3)												
Ehrlichia chaffeensis PCR: 02/10/2005 NEG												

Users can

- Enter and approve results
- Schedule additional tests
- Exclude a result from the ECLRS report
- Modify specimen attributes

SR - Notes Tab

AccID: DIL0400002843 (ReadOnly)

Demographics Lab Results **Notes** Reports Audit Summary

Rpt?	Order	Note	Entered By	Date	Form
		received specimen 01.02.05	franchel	02/10/2005	
T		md called for report.	franchel	02/10/2005	
		Number of Notes: 2			

Users can

- Enter free-form or select from pre-defined notes
- Toggle the reportability of the notes
- Specify the print order of notes

SR - Reports Tab

AccID: DIL0400002843 (ReadOnly)

Demographics Lab Results Notes **Reports** Audit Summary

Output Bin	Row	Mail ID	Acc ID	No	Date	Gen.	Gen. By	Date Sent	Sent By	DR	1	2	3	4	5	6	7	8	A	A	A	A	A	A	E	I	P	F	D
NEW	1	** NEW **	** NEW **		00/00/00			00/00/00		01	*																		
FOLLOWUP	2	SFM105171	DIL0400002843	3	02/10/05	franchel		00/00/00		0:fr	D	0	T	3	H	S	1	1	C	D	W	D	P	A					H
	3	SFM105171	DIL0400002843	2	02/10/05	franchel		00/00/00		0:fr	D	0	T	3	H	S	1	1	C	D	W	D	P	A					H
SUBMITTER	4	SFM105171	DIL0400002843	1	02/10/05	franchel		00/00/00		0:fr	D	0	T	3	H	S	1	1	C	D	W	D	P	A					H

Report #3

REQUESTED BY: FRANCHELL-PM1067 **PATIENT: GREEN 947, GHITA**

CAROL FRANCHELL
WADSWORTH CENTER
PO BOX 509
EMPIRE STATE PLAZA
ALBANY NY 122010509

DOB: 11/02/1985
SEX: M
County of Residence: <Not Given>

REVISED / FINAL LABORATORY REPORT

Specimen: DIL0400002843-01 Date collected: 6/1/2004
Type: Serum Date received: 10/29/2004
Onset date: 6/1/2004

Ehrlichia Serology

****new**** Agent of HGE IgG: **Suggests evidence of infection at an undetermined time**
**** Previously reported on 02/10/2005 as: No evidence of past infection

****new**** DIL0400002843-01 06/01/04 Bands: **Positive**
**** Previously reported on 02/10/2005 as: Negative

Agent of HGE IgM: **No evidence of recent infection**
DIL0400002843-01 06/01/04 Bands: **Negative**

Summary
of all
reports
generated
for the
accession

Preview a
report or
view
previously
generated
reports

SR - Audit Tab

Demographics	Lab Results	Notes	Reports	Audit
Record ID: DIL0400002843 9273750 Changed By: franchel Date: 2/10/2005 14:17:47				
Field: SPECIMENINTERP si_interp				
From: Negative To: Positive				
Context: Lab: DI Sp: 01 Test: HGEIGGBLOT(v1)Record # 9238018				
Appt: CLREVIEW 2/4/2005 10:14:58				
Audit ID	Date	Employee	Rec. Type	Action/Change
9273753	02/10/05 14:17:59	franchel	ACTION	CA_STATUS DEDONE 2 FADONE
9273752	02/10/05 14:17:58	franchel	ACTION	Send a Report
9273751	02/10/05 14:17:58	franchel	ACTION	Approve
9273750	02/10/05 14:17:47	franchel	CHANGE	SPECIMENINTERP.si_interp = Positive
9273749	02/10/05 14:17:47	franchel	ACTION	Alter a reported value.
9273748	02/10/05 14:17:46	franchel	CHANGE	SPECIMENINTERP.si_interp = Suggests evidence of infection at
9273747	02/10/05 14:17:46	franchel	ACTION	Alter a reported value.
9273746	02/10/05 14:17:28	franchel	ACTION	CA_STATUS FADONE 2 DEDONE
9273745	02/10/05 14:17:00	franchel	ACTION	CA_STATUS DEDONE 2 FADONE
9273744	02/10/05 14:16:59	franchel	ACTION	Send a Report
9273743	02/10/05 14:16:43	franchel	ADDNOTE	md called for report.
9273742	02/10/05 14:16:34	franchel	ACTION	CA_STATUS FADONE 2 DEDONE
9273737	02/10/05 14:16:11	franchel	ACTION	CA_STATUS DEDONE 2 FADONE
9273736	02/10/05 14:16:11	franchel	CHANGE	clinicalaccession.abnormality_code = NS
9273735	02/10/05 14:16:10	franchel	ACTION	Send a Report
9273734	02/10/05 14:16:10	franchel	CHANGE	CLINICALSPECIMEN.abnormality_code = NS
9273733	02/10/05 14:16:10	franchel	CHANGE	CLINICALSPECIMEN.abnormality_code = NS
9273732	02/10/05 14:16:10	franchel	ACTION	Approve
9273731	02/10/05 14:16:10	franchel	ACTION	Approve
9273730	02/10/05 14:15:52	franchel	ADDNOTE	received specimen 01.02.05
9273729	02/10/05 14:15:51	franchel	CHANGE	clinicalaccession.facility_id = PF11067
9273728	02/10/05 14:15:51	franchel	CHANGE	clinicalaccession.submitter_id = FRANCHELLC
9273727	02/10/05 14:15:51	franchel	CHANGE	SPECIMENINTERP.si_interp = Negative

Details of the selected audit entry

Complete audit trail of all actions performed on the accession

SR - Summary Tab

Demographics	Lab Results	Notes	Reports	Audit	Summary																																																																																																									
<table><tr><td>Acc ID</td><td>Submitter</td><td>Facility</td><td>Status</td><td># Rvw</td></tr><tr><td colspan="2">Patient: First Name Last Name</td><td>Age</td><td>Sex</td><td>County</td></tr><tr><td>DIL-04-000-00027</td><td>LABDIR</td><td>PFI5017</td><td>FADONE</td><td>0</td></tr><tr><td colspan="2">Patient:</td><td>046</td><td></td><td></td></tr><tr><td colspan="5">Subm. Cmnts:</td></tr><tr><td colspan="5">SpId: DIL0400000027-01; Type: SER; Initial TG: ARBOVIRUS</td></tr><tr><td colspan="5">EEE IgG Interpretation: 5P</td></tr><tr><td colspan="5">EEE IgG Titer: L16</td></tr><tr><td colspan="5">LaCross IgG Interpretation: 5P</td></tr><tr><td colspan="5">LaCross IgG Titer: L16</td></tr><tr><td colspan="5">St Louis IgG Interpretation: XRP</td></tr><tr><td colspan="5">St Louis IgG Titer: GE16</td></tr><tr><td colspan="5">Western Equine IgG Interpretation: 5P</td></tr><tr><td colspan="5">WEE IgG Titer: L16</td></tr><tr><td colspan="5">West Nile IgM Interpretation: NR3</td></tr><tr><td colspan="5">West Nile IgM ELISA Result: NR</td></tr><tr><td colspan="5">WN Poly MIA Interp: R2</td></tr><tr><td colspan="5">WN Poly MIA Result: R</td></tr><tr><td colspan="5">SpId: DIL0400000027-02; Type: CSF; Initial TG: ARBOVIRUS</td></tr><tr><td colspan="5">West Nile IgM Interpretation: NR3</td></tr><tr><td colspan="5">West Nile IgM ELISA Result: NR</td></tr></table>						Acc ID	Submitter	Facility	Status	# Rvw	Patient: First Name Last Name		Age	Sex	County	DIL-04-000-00027	LABDIR	PFI5017	FADONE	0	Patient:		046			Subm. Cmnts:					SpId: DIL0400000027-01; Type: SER; Initial TG: ARBOVIRUS					EEE IgG Interpretation: 5P					EEE IgG Titer: L16					LaCross IgG Interpretation: 5P					LaCross IgG Titer: L16					St Louis IgG Interpretation: XRP					St Louis IgG Titer: GE16					Western Equine IgG Interpretation: 5P					WEE IgG Titer: L16					West Nile IgM Interpretation: NR3					West Nile IgM ELISA Result: NR					WN Poly MIA Interp: R2					WN Poly MIA Result: R					SpId: DIL0400000027-02; Type: CSF; Initial TG: ARBOVIRUS					West Nile IgM Interpretation: NR3					West Nile IgM ELISA Result: NR				
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West Nile IgM Interpretation: NR3																																																																																																														
West Nile IgM ELISA Result: NR																																																																																																														

Customizable by lab

A vertical stack of letters on the left side of the slide: 'C' (light green), 'C' (dark green), 'L' (light green), 'L' (dark green), 'I' (light green), 'I' (dark green), 'M' (light green), 'M' (dark green), 'S' (light green), and 'S' (dark green).

Additional Essential Features

- Acute / Convalescent specimen pairing
- Ability to define complex algorithms for the calculation of results and reflex testing
- Ability to share specimens between labs incorporating all results on a single submitter report
- Capture forensic attributes on specimens submitted for BioDefense

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Questions?